

WHAT IS CLAIMED IS:

1. A color display, comprising:
 - a) an array of light emitting pixels, each pixel having a plurality of color light emitting elements for emitting different colors of light and at least one additional light emitting element for emitting white light and wherein the power efficiency of the additional light emitting element is higher than the power efficiency of at least one of the color light emitting elements;
 - b) means for generating a brightness control signal; and
 - c) means responsive to the brightness control signal and a color display signal for generating a white display signal for driving the white light emitting element(s).
2. The color display claimed in claim 1, wherein the means for generating the brightness control signal comprises a photosensor located to sense ambient illumination.
3. The color display claimed in claim 1, wherein the means for generating the brightness control signal comprises an operator controlled input device.
4. The display claimed in claim 1, wherein the means for generating the white display signal includes one or more lookup tables.
5. The display claimed in claim 1, wherein the color light emitting elements produce red, green, and blue light.
6. The display claimed in claim 1, wherein the additional white light emitting element is larger than any of the color light emitting elements.

7. The display claimed in claim 1, wherein each pixel comprises three color light emitting elements and one white light emitting element.

8. The display claimed in claim 7, wherein the light emitting elements form a stripe or a two by two matrix pattern.

9. The display claimed in claim 2, wherein the photosensor and the light emitting elements are formed on a common substrate.

10. The display claimed in claim 9, wherein the means for generating the white display signal is also formed on the common substrate.

11. The display claimed in claim 1, wherein the display is a top emitting OLED device.

12. The display in claim 1, wherein the display is a bottom emitting OLED device.

13. The display in claim 1, wherein the display is an active matrix device.

14. The display in claim 1, wherein the display is a passive-matrix device.

15. The display claimed in claim 1, wherein the display device is an LCD display device.

16. The display claimed in claim 1, wherein the light emitting elements have different sizes.

17. The display claimed in claim 1, wherein the light emitting elements have different shapes.

18. The display claimed in claim 1, wherein the white light emitting element has the same white point as a white point of the display.

19. A method of displaying a color image, comprising:

a) providing an array of light emitting pixels, each pixel having a plurality of color light emitting elements for emitting different colors of light and at least one additional light emitting element for emitting white light and wherein the power efficiency of the additional light emitting element is higher than the power efficiency of at least one of the color light emitting elements;

b) generating a brightness control signal;

c) responsive to the brightness control signal and a color display signal, generating a white display signal; and

d) driving the white light emitting element(s) with the white display signal and driving the color light emitting elements with the color display signal.

20. The method claimed in claim 19, wherein the step of generating the brightness control signal includes using a photosensor to sense ambient illumination.

21. The method claimed in claim 19, wherein the means for generating the brightness control signal comprises an operator controlled input device.

22. The method claimed in claim 19, wherein the step of generating the white display signal includes employing one or more lookup tables.

23. The method claimed in claim 19, wherein the color light emitting elements produce red, green, and blue light.

24. The method claimed in claim 19, wherein the additional white light emitting element is larger than any of the color light emitting elements.

25. The method claimed in claim 19, wherein each pixel comprises three color light emitting elements and one white light emitting element.

26. The method claimed in claim 25, wherein the light emitting elements form a stripe or a two by two matrix pattern.

27. The method claimed in claim 20, wherein the photosensor and the light emitting elements are formed on a common substrate.

28. The method claimed in claim 27, wherein the step of generating the white display signal employs a circuit that is also formed on the common substrate.

29. The method claimed in claim 19, wherein the display is a top emitting OLED device.

30. The method in claim 19, wherein the display is a bottom emitting OLED device.

31. The method in claim 19, wherein the display is an active matrix device.

32. The method in claim 19, wherein the display is a passive matrix device.

33. The method claimed in claim 19, wherein the display device is an LCD display device.

34. The method claimed in claim 19, wherein the light emitting elements have different sizes.

35. The method claimed in claim 19, wherein the light emitting elements have different shapes.

36. The method claimed in claim 19, wherein the white light emitting element has the same white point as a white point of the display.